



4234.0 - Work-Related Training and Adult Learning, Australia, Apr 2013

Previous ISSUE Released at 11:30 AM (CANBERRA TIME) 06/12/2013 First Issue

Summary

Contents

CONTENTS



SUMMARY OF FINDINGS

Includes: 46% of Australians participated in formal or non-formal learning



WORK-RELATED TRAINING

Includes: 4 Million employed Australians participated in work-related training for their current job



PERSONAL INTEREST LEARNING

Includes: 1.4 million Australians participated in personal interest learning



BARRIERS TO PARTICIPATION ON NON-FORMAL LEARNING

Includes: More women than men reported barriers to non-formal learning

In this issue

NOTES

ABOUT THIS PUBLICATION

This publication presents information about education and training activities undertaken by Australians aged 15-74 years, with a focus on work-related training and personal interest learning.

Statistics in this publication were collected in April 2013 as a supplement to the Australian Bureau of Statistics' (ABS) monthly Labour Force Survey (LFS).

Information collected in the survey includes:

- Participation rates for non-formal learning, including work-related training and personal interest learning in the 12 months prior to interview;
- Education and employment characteristics of people who undertake training;
- Reasons for participation, the time spent and personal costs incurred for the most recent training course; and
- Barriers that prevent people from undertaking training.

Information on the concepts and methods used in the survey, reliability of the results, definitions and interpretation are included in the Explanatory Notes, Technical Note and Glossary. Unless otherwise specified, differences between data items highlighted in the Summary of Findings are statistically significant (refer to the Significance Testing section of the Technical Note).

This release consists of Data Cubes in spreadsheet format only.

ROUNDING

As estimates have been rounded, discrepancies may occur between the sum of component items and the published total. Published percentages are calculated prior to rounding and therefore some discrepancy may occur between these percentages and those that could be calculated from the rounded figures.

MORE INFORMATION ON EDUCATION STATISTICS

Information about ABS' activities in the education and training field is available from the Education and Training page on the ABS website.

INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

Summary of findings



SUMMARY OF FINDINGS

PARTICIPATION IN LEARNING

Education and training are major contributing factors to personal and economic well-being. In the main, schooling and/or higher education prepares young adults for the workforce, while further training such as work-related training, is vital in maximising people's capabilities and increasing productivity and workforce participation. Other training that is not work-related, i.e. personal interest learning such as recreational and personal enrichment courses, also play an important part in society as it improves both community and personal well-being.

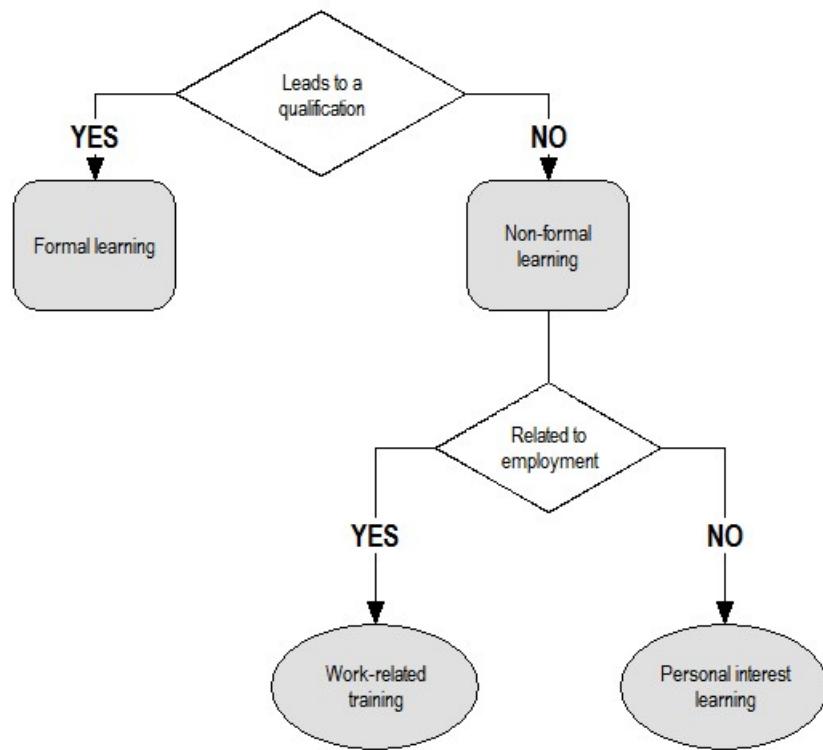
Structured or organised learning can be classified into two distinct categories:

- Formal learning is structured learning that leads to a qualification recognised by the Australian Qualifications Framework (AQF), for example a Senior Secondary Certificate of Education, a Certificate III, or a Bachelor Degree. Note that formal learning also includes school study.
- Non-formal learning also refers to structured learning, however it does not lead to a recognised qualification, for example a construction site induction.

Non-formal learning can be further categorised into:

- work-related training which is undertaken to obtain, maintain or improve employment skills or to improve employment opportunities
- personal interest learning which is undertaken for reasons not related to work.

The following diagram shows the distinction between the three different learning activities included in this publication.



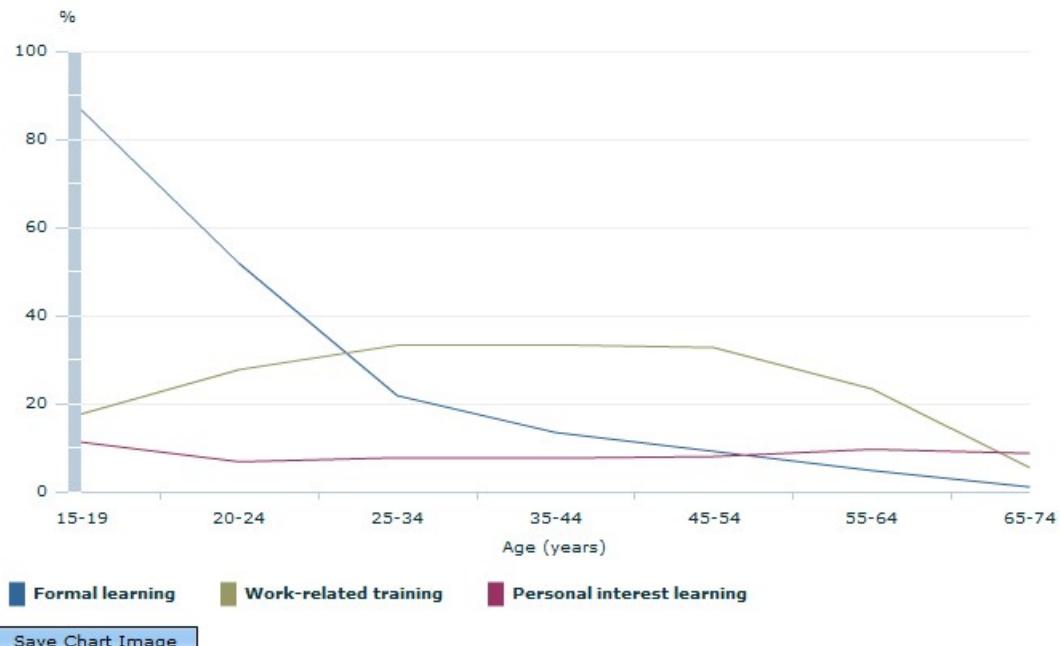
In the 12 months to April 2013, it was estimated that of the 17.1 million people aged 15-74 years:

- 3.7 million (22%) participated in formal learning
- 4.6 million (27%) participated in work-related training
- 1.4 million (8.4%) participated in personal interest learning.

Overall, 8.0 million (46%) participated in at least one of these types of learning in the previous 12 months.

Participation in formal learning decreased with age from 87% of people aged 15-19 years participating to 1.1% of those aged 65-74 years. Participation in work-related training was highest for those aged between 25 and 54 years, with around a third (33%) of this group having undertaken work-related training in the last year. The proportion of people undertaking personal interest learning in the last 12 months was relatively consistent across the age groups, with the 15-19 year age group the most likely to undertake personal interest learning (11%). (Table 1)

Graph 1.1: Participation in formal learning, work-related training and personal interest learning by age - April 2013 (a)



[Save Chart Image](#)

Australian Bureau of Statistics

© Commonwealth of Australia 2013.

Footnote(s): (a) Persons aged 15-74 years, participation in last 12 months

Source(s): Work-Related Training and Adult Learning, Australia

Work-related training



WORK-RELATED TRAINING

Australia's long-term prosperity, particularly in an increasingly global economy, is heavily dependent on ongoing investment in workforce development. In addition, the changing structure of the labour market and the fast pace of technological change, requires Australia's workers to not only maintain, but also improve and broaden their employment related skills. Apart from formal qualifications undertaken through the education system, work-related training plays a crucial role in developing and sustaining skilled and competent employees. For the individual, work-related training may help enhance personal and professional development and build new capabilities. For businesses, it improves workplace performance and productivity.

Work-related training refers to structured learning activities that do not lead to a formal qualification. These often take place at the workplace (delivered by another employee or a consultant hired to deliver the work-related training) or can be undertaken externally.

PARTICIPATION IN WORK-RELATED TRAINING

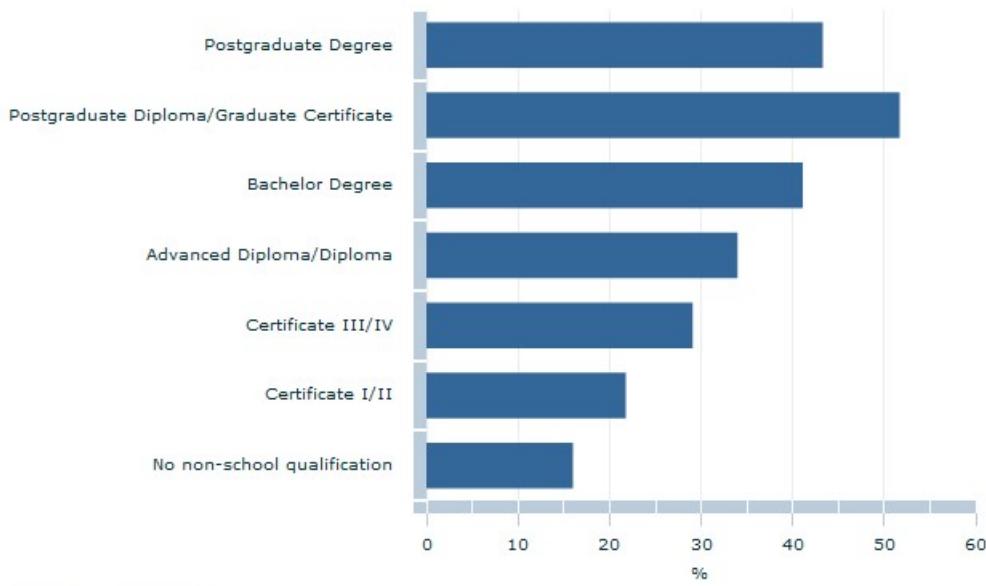
It was estimated that around 4.6 million (27%) Australians aged 15-74 years participated in work-related training in the 12 months to April 2013. There was no difference in the participation rates between men and women (both 27%). Participation rates were lower for those aged 15-24 years and older Australians aged 55-74 years reflecting the lower rates of employment participation in these age groups.

The Australian Capital Territory had the highest proportion of people undertaking work-related training (39%), while Queensland and Victorian participation rates were 24% and 26% respectively. People living in the Northern Territory spent more time undertaking their most recent work-related training course when compared with the other states

and territories, with 60% having spent 20 hours or more. Amongst the other states and territories the proportion of people spending 20 hours or more on their most recent course ranged from 34% in Tasmania to 48% in the Australian Capital Territory. The proportion of people who incurred personal costs for their most recent course was 9.2% in the Northern Territory compared with 18% of people living in Queensland and New South Wales. (Table 1 and 3)

People who have completed a formal non-school qualification had higher participation rates than people who had not (35% compared with 16%). Furthermore, people with higher level qualifications were more likely to participate in work-related training when compared with those with lower level qualifications. Of those people whose highest qualification was a Bachelor Degree or higher, 43% had participated in work-related training, compared with 22% of people whose highest non-school qualification was a Certificate I or II. (Table 1)

Graph 2.1: Participation in work-related training by highest non-school qualification - April 2013 (a)



[Save Chart Image](#)

Australian Bureau of Statistics

© Commonwealth of Australia 2013.

Footnote(s): (a) Persons aged 15-74 years, participation in last 12 months

Source(s): Work-Related Training and Adult Learning, Australia

CHARACTERISTICS OF MOST RECENT COURSE

Of those who had participated in work-related training in the last 12 months, just over a third (36%) reported undertaking one course, 22% undertook two courses, and 43% participated in three or more courses.

Traditional classroom instruction, including lectures, presentations and seminars, was the most common method for delivering the most recent work-related training, with 75% of participants reporting this as the main delivery method. Online instruction was the main delivery method for 13% of participants. (Table 3)

Unlike study towards a non-school qualification, where people generally participate to improve their job prospects (51%), most work-related training was undertaken to improve skills for the current job, with nine in ten people (90%) reporting this as their main reason for participating in their most recent course. Increasing job prospects (7.3%) and personal development (1.7%) were less common reasons for participation. (Table 2)

One quarter (25%) of all people who undertook work-related training reported they always used the skills or knowledge gained from the most recent course, while 23% reported they used the skills or knowledge often. The proportion of people who reported they always used the new skills or knowledge was higher amongst younger people (aged 15-24 years) than older people (aged 65-74 years) (29% compared with 17%). (Table 4)

WORK-RELATED TRAINING AND EMPLOYMENT

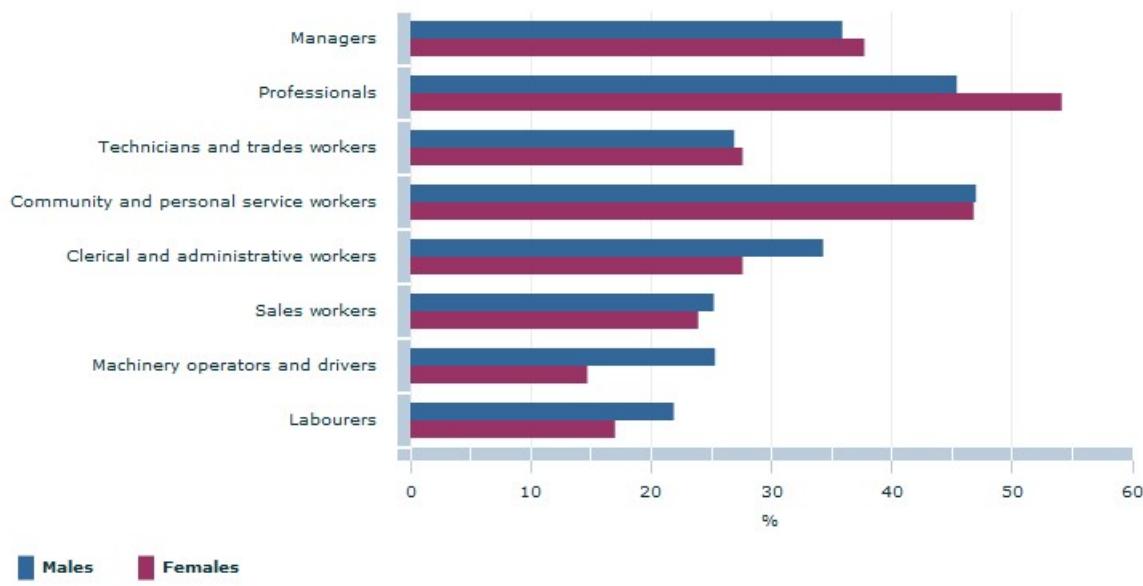
In the 12 months to April 2013, around 4.0 million (35%) employed persons aged 15-74 participated in work-related training as part of their current main job. People employed full-time were more likely to participate than those employed part-time (38% compared with 27%). Employees were also more likely to participate than people working in their own business (37% compared with 17%). (Table 5)

Participation in work-related training varied across the different industries. Over half of those working in the Education and Training (54%), Public Administration and Safety (53%), Mining (52%) and Health Care and Social Assistance (52%) industries had undertaken work-related training. Participation rates were lower for those employed in Wholesale Trade (21%), Accommodation and Food Services (20%) and Agriculture, Forestry and Fishing (16%). (Table 5)

Men were more likely than women to undertake work-related training if employed in Information Media and Telecommunications (43% compared with 22%) and Professional, Scientific and Technical Services (40% compared with 31%). In contrast more women than men employed in Education and Training (57% compared with 47%) had participated.

Professionals and Community and Personal Service Workers were the occupations with the highest participation (50% and 47% respectively), while 20% of labourers had participated in work-related training as part of their current job. Across most occupations, participation rates between women and men were relatively similar, however, more female professionals had undertaken work-related training (54% compared with 45%). Men were more likely than women to have participated if employed as Machinery Operators and Drivers (25% compared with 15%) and Clerical and Administrative Workers (34% compared with 28%). (Table 5)

Graph 2.2: Participation in work-related training for current main job by sex - April 2013 (a)

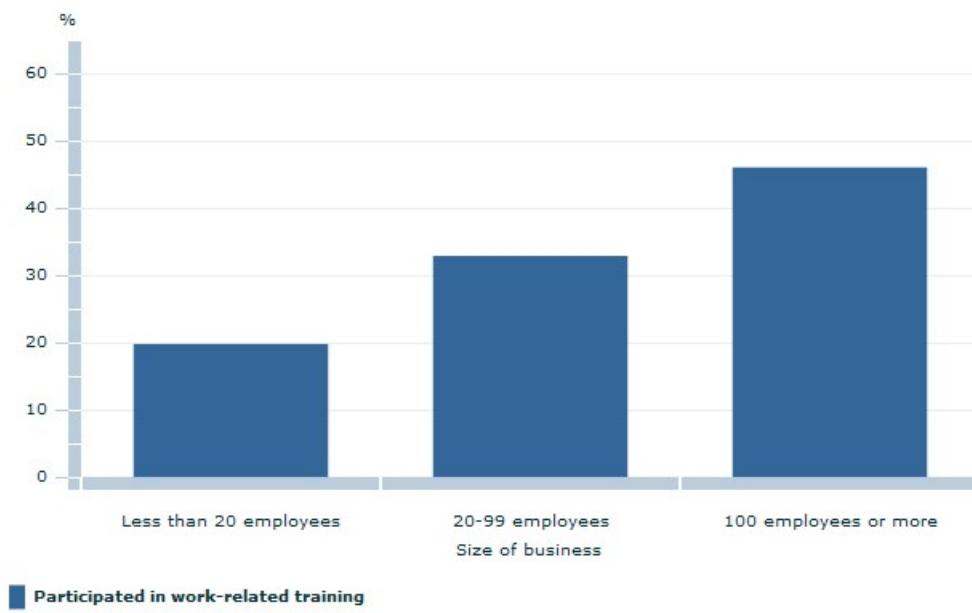


Footnote(s): (a) Persons aged 15-74 years, participation in last 12 months as part of current main job

Source(s): Work-Related Training and Adult Learning, Australia

Participation in work-related training varied with the size of the employer. People employed in larger businesses (100 employees or more) were more likely to have participated in work-related training (46%) when compared with people employed in medium sized (20 to 99 employees) (33%) and smaller (less than 20 employees) (20%) businesses. (Table 5)

Graph 2.3: Participation in work-related training as part of current main job by size of business- April 2013 (a)



[Save Chart Image](#)

Australian Bureau of Statistics

© Commonwealth of Australia 2013.

Footnote(s): (a) Persons aged 15-74 years, participation in last 12 months relating to current main job

Source(s): Work-Related Training and Adult Learning, Australia

Furthermore, amongst people who had undertaken work-related training, those working in larger businesses were more likely to have completed three or more work-related training courses (51%) when compared with those employed in smaller businesses (32%). (Table 7)

Larger businesses were more likely than smaller businesses to deliver the work-related training in-house by an existing staff member (45% compared with 9.7% - based on the most recent course). For persons employed in medium sized businesses, the most common way to deliver the most recent course was by a consultant hired by the business (60%). (Table 7)

Participation in work-related training is largely supported by employers who, in most cases, bear the costs in terms of time and money. Most employed people who participated in work-related training (86%) did not incur any personal costs associated with their most recent course. People employed in smaller businesses were more likely to incur a personal cost than those in larger businesses (41% compared with 7.0%). (Table 9 and 10)

The majority of employed people undertake work-related training during working hours only (68%). However, the proportion undertaking work-related training outside working hours varies across the different occupations. For example, approximately 11% of Clerical and Administrative Workers had undertaken some part of their most recent course outside working hours compared with 39% of Community and Personal Service Workers. (Table 10)

Of those who had undertaken work-related training for their current job, the median time spent undertaking the most recent course was 16 hours. Over one third (38%) of people had spent less than 10 hours on the most recent course, while 30% had participated for 30 hours or more. Note that this time includes both contact (time spent with an instructor or teacher) and non-contact time (time to complete other tasks such as assignments and research). (Table 8 and 10)

Personal interest learning



PERSONAL INTEREST LEARNING

Personal interest learning is structured learning that does not lead to a recognised qualification and is not related to employment. It is therefore largely undertaken on a self-motivated basis for a range of reasons including the pursuit of knowledge, personal development, interest and enjoyment.

PARTICIPATION IN PERSONAL INTEREST LEARNING

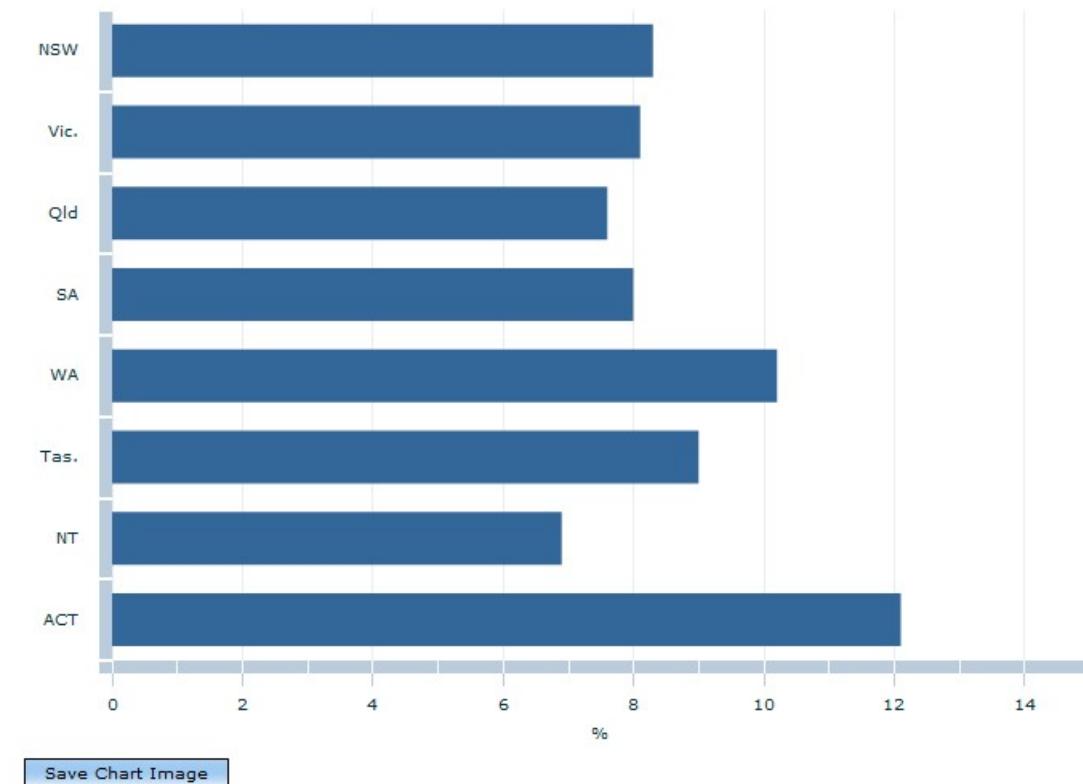
In the 12 months to April 2013, an estimated 1.4 million Australians (8.4%) participated in structured personal interest learning. Personal interest learning was more prevalent amongst women, with 10% participating in at least one course compared with 6.6% of men. (Table 1)

Participation was the highest amongst people aged 15-19, with 11% of people in this age group participating. Older people (aged 65-74 years) were more likely to participate in personal interest learning (8.7%) than to participate in either work-related training (5.5%) or formal learning (1.1%). (Table 1)

People living in areas of relatively high socio-economic disadvantage (Quintile 1) were less likely to participate in personal interest learning than people living in areas where disadvantage is low (Quintile 5) (4.8% compared with 12%). (Table 1 - Index of Socio-Economic Disadvantage).

Across the states and territories, the Australian Capital Territory had the highest proportion of people undertaking at least one personal interest learning course (12%). (Table 1)

Graph 3.1: Participation in personal interest learning by state or territory - April 2013 (a)



Australian Bureau of Statistics

© Commonwealth of Australia 2013.

Footnote(s): (a) Persons aged 15-74 years, participation in last 12 months

Source(s): Work-Related Training and Adult Learning, Australia

CHARACTERISTICS OF MOST RECENT COURSE

Most of those who participated in personal interest learning in the last 12 months participated in one course (71%), 17% participated in two courses, and 12% participated in three or more courses. Women were more likely than men to do two or more courses (32% compared with 26%). (Table 11 and 12)

Based on the most recent personal interest learning course undertaken in the last 12 months, the main reasons reported by respondents for participating was personal development (59%) and enjoyment or interest (37%). (Table 12)

Unlike work-related training, where most participants did not incur personal costs for the training, 71% of people who undertook personal interest learning incurred costs for their most recent course. Of those who participated, 12% incurred costs between \$1 and \$99, 15% between \$100 and \$199 and 42% incurred costs of \$200 or more. An estimated 60% of people living in Tasmania incurred costs for their most recent personal interest learning course compared with 77% of people living in the Northern Territory. (Table 11)

Barriers to participation in non-formal learning



BARRIERS TO PARTICIPATION IN NON-FORMAL LEARNING

Perceived barriers to non-formal learning (either work-related training or personal interest learning) provide insight into why certain people or groups of people may not participate in further learning opportunities. People may have responsibilities they must balance against the desire to participate in training and learning activities. Due to these demands, there are barriers that prevent people from undertaking training that they may otherwise wish to do. These can include, lack of time, employer support or money, language barriers and access to childcare or transportation.

An estimated 2.5 million people aged 15-74 years (15%) reported they had wanted to participate in more non-formal learning during the 12 months to April 2013. This includes people who had already participated in some non-formal learning but wanted to do more. Women were more likely than men to report wanting to do (more) non-formal learning (18% compared to 12%). Unemployed people (22%) were more likely than people employed full-time (16%) and part-time (17%) to report they wanted to participate in (more) non-formal learning.

People who had participated in non-formal learning in the 12 months prior to the survey, were more likely to report wanting to participate in more non-formal learning than those who had not done any non-formal training (23% compared with 11%). People who had completed a non-school qualification were twice as likely than those without a non-school qualification to want to participate in (more) non-formal learning (19% compared with 9.0%). (Table 13).

MAIN BARRIER TO PARTICIPATION

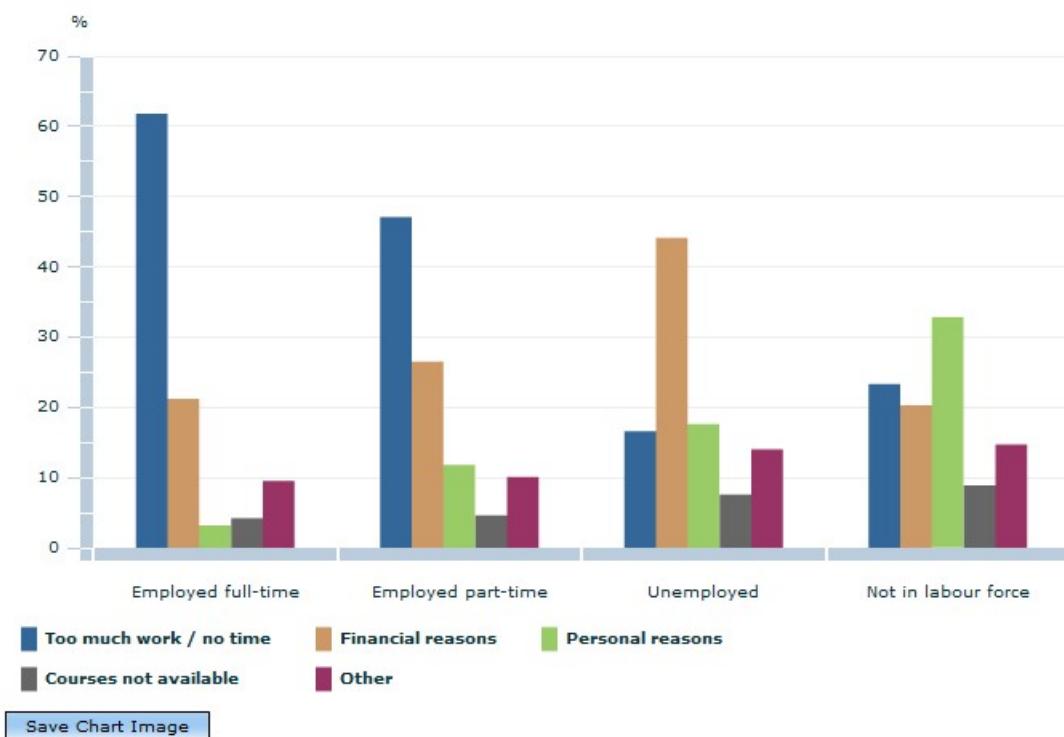
For people who wanted to participate in non-formal learning but did not, or participated in non-formal learning but wanted to do more, the main barriers to participation were;

- too much work or no time (48%)
- financial reasons (24%)
- personal reasons (12%)
- course not available (5.4%).

Men were more likely than women to report too much work or no time as the main barrier to participation (53% compared with 45%), whereas a higher proportion of women reported personal reasons, such as ill health or a lack of childcare, as their main barrier (15% compared with 7.2%). Financial reasons were more likely to be the main barrier to participation for people aged 15-24 years (31%) when compared with older people aged 55-64 years (19%) and 65-74 years (14%).

For unemployed people, financial reasons were the main barrier to participation (44%). (Table 14)

Graph 4.1: Main barrier to participation in non-formal learning by employment status - April 2013 (a)



[Save Chart Image](#)

Australian Bureau of Statistics

© Commonwealth of Australia 2013.

Footnote(s): (a) Not employed includes unemployed persons and persons not in the labour force

Source(s): Work-Related Training and Adult Learning, Australia

About this Release

This publication provides a range of information about participation in formal and non-formal learning, with a particular focus on work-related training.

Along with general demographic, educational and employment characteristics, the data available includes the participation rates for non-formal learning, the reasons for participation, the time spent and personal costs incurred. Information is also collected on the barriers that prevent some people from undertaking non-formal learning.

The data are available in Excel spreadsheet format.

History of Changes

This document was added or updated on 12/12/2013.

12/12/2013

A minor amendment to the contents page in the Date Cube has been made to correct an incorrectly labelled table. Table 4 was incorrectly labelled 'Persons aged 15–74 years who participated in work-related training, Selected characteristics of work-related training—By state or territory'. The correct title is 'Persons aged 15–74 years who participated in work-related training, Selected characteristics of work-related training—By age and sex'. This error only affected the contents page and not the actual spreadsheet table.

Explanatory Notes

Explanatory Notes

EXPLANATORY NOTES

INTRODUCTION

1 This publication contains results from the 2013 Survey of Work-Related Training and Adult Learning (WRTAL), conducted throughout Australia in April 2013 as a supplement to the monthly Labour Force Survey (LFS). Respondents to the LFS who were in scope of the supplementary survey were asked further questions about their participation in training and learning activities.

2 WRTAL provides data about the level of participation of Australia's population in formal and non-formal learning, with a particular focus on work-related training and personal interest learning. Along with general demographic and employment characteristics of people who undertake training, information available from the survey includes participation rates in non-formal learning, the reasons for participation, the time spent and personal costs incurred. Also collected are data on the barriers that prevent some people from undertaking training.

3 The WRTAL survey was conducted for the first time in April 2013 and is to be collected every four years, with the next iteration planned for January 2017. Similar data was collected previously in the Survey of Education and Training (SET) however, due to the different collection methodologies, the data cannot be directly compared. Further details about these differences are outlined below in the Data Comparability section.

4 The publication Labour Force, Australia (cat. no. 6202.0) contains information about survey design, sample redesign, scope, coverage and population benchmarks relevant to the monthly LFS, which also apply to supplementary surveys. It also contains definitions of demographic and labour force characteristics.

Concepts, Sources and Methods

5 The conceptual framework used in Australia's LFS aligns closely with the standards and guidelines set out in Resolutions of the International Conference of Labour Statisticians. Descriptions of the underlying concepts and structure of Australia's labour force statistics, and the sources and methods used in compiling these estimates, are presented in Labour Statistics: Concepts, Sources and Methods, April 2007 (cat. no. 6102.0.55.001).

SCOPE AND COVERAGE

Scope

6 The scope of WRTAL is restricted to persons aged 15-74 years who were usual residents of private dwellings excluding:

- members of the permanent defence forces
- certain diplomatic personnel of overseas governments, customarily excluded from the Census of Population and Housing and estimated resident populations
- overseas residents in Australia
- members of non-Australian defence forces (and their dependants).

7 In addition, this supplementary survey excluded persons living in Indigenous communities and in non-private dwellings such as hotels, university residences, boarding schools, hospitals, retirement homes, homes for people with disabilities, and prisons.

Coverage

8 The estimates in this publication relate to persons covered by the survey scope. In the LFS, coverage rules are applied which aim to ensure that each person is associated with only one dwelling and hence has only one chance of selection in the survey. See Labour Force, Australia (cat. no. 6202.0) for more details.

DATA COLLECTION

9 Information was mainly collected through interviews conducted over a two week period in April 2013. Interviews

were conducted either face-to-face or over the telephone. In the selected dwellings, after the LFS had been fully completed for each person in scope, a usual resident aged 15-74 years was selected at random (based on a computer algorithm) to complete WRTAL. If the randomly selected person was aged 15-17 years, permission was sought from a parent or guardian before conducting the interview. If permission was not given, the parent or guardian was asked the questions on behalf of the 15-17 year old (a proxy interview).

10 All interviews were conducted using computer assisted interviewing (CAI).

11 In December 2012, the ABS began a trial of online electronic data collection. Respondents in one rotation group (i.e. one-eighth of the LFS sample) were offered the option of self completing their labour force survey questionnaire over the Internet instead of via a face-to-face or telephone interview. Those households who took up this offer and completed the LFS online were not required to answer the WRTAL survey, which resulted in a small decrease in the sample size for WRTAL of around 3% had these people been included. Analysis showed that the exclusion of these respondents had no significant impact on the quality of the estimates.

12 All respondents who reported being permanently unable to work and those aged 65-74 years who were permanently not intending to work, were not asked questions about participation in work-related training. These people were all classified as having not participated. There were approximately 1.4 million people that made up these two groups, comprising around 330,000 people who are permanently unable to work and 1.1 million people aged 65-74 years who were permanently not intending to work. Note that information regarding participation in personal interest learning and formal learning were collected for these respondents.

13 ABS supplementary surveys such as WRTAL are restricted to no more than seven eighths of the LFS sample. Approximately 95% of the selected households were fully responding to the WRTAL survey, which resulted in around 20,000 completed interviews.

ESTIMATION METHOD

Weighting

14 Weighting is the process of adjusting results from a sample survey to infer results for the total population. To do this, a 'weight' is allocated to each enumerated person. The weight is a value which indicates how many persons in the population are represented by the sample person.

15 The first step in calculating weights for each unit is to assign an initial weight, which is the inverse of the probability of the unit being selected in the survey. For example, if the probability of a person being selected in the survey was 1 in 300, then the person would have an initial weight of 300 (that is, they represent 300 people).

Population Benchmarks

16 The initial weights are calibrated to align with independent estimates of the population, referred to as benchmarks. The population included in the benchmarks is the survey scope. This calibration process ensures that the weighted data conform to the independently estimated distribution of the population described by the benchmarks rather than to the distribution within the sample itself. Calibration to population benchmarks helps to compensate for over or under-enumeration of particular categories of persons which may occur due to either the random nature of sampling or non-response.

17 The survey was benchmarked to the estimated population aged 15-74 years living in each state and territory, excluding people living in non-private dwellings and Indigenous communities. The benchmarks, and hence the estimates from the survey, do not (and are not intended to) match estimates of the total Australian resident population (which includes persons living in Indigenous communities and in non-private dwellings) obtained from other sources.

Estimation

18 Survey estimates of counts of persons are obtained by summing the weights of persons with the characteristics of interest.

RELIABILITY OF ESTIMATES

19 All sample surveys are subject to error which can be broadly categorised as either sampling error or non-sampling error.

20 Sampling error is the difference between the published estimates, derived from a sample of persons, and the

value that would have been produced if all persons in scope of the survey had been included. For more information refer to the Technical Note.

21 Non-sampling error may occur in any collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or recording answers by interviewers, and errors in coding and processing data. Every effort is made to reduce the non-sampling error by careful design and testing of the questionnaire, training and supervision of interviewers, follow-up of respondents, and extensive editing and quality control procedures at all stages of data processing.

Seasonal Factors

22 Most of the WRTAL estimates in this publication relate to participation in training and learning activities undertaken in the 12 months prior to April 2013. This limits the effect of seasonal factors. However, some data relate to the most recent training course, and hence may not be representative of other months of the year.

DATA QUALITY

23 Information recorded in this survey is essentially 'as reported' by respondents and hence may differ from that which might be obtained from other sources or via other methodologies. In addition, the labour force characteristics collected in the survey, such as employment status, industry and occupation, relate to the week before the survey interview and therefore may not reflect the respondent's actual labour force status at the time they participated in the training. This factor should be considered when interpreting some of the estimates in this publication. However, most tables with labour force characteristics, have been restricted to those employed persons who undertook their training as part of their current main job.

DATA COMPARABILITY

Comparability with other ABS surveys

24 Since WRTAL is conducted as a supplement to the LFS, data items collected in the LFS are also available in WRTAL. However, there are some important differences between the two surveys. The WRTAL sample is a subset of the LFS sample (refer to the Data Collection section above) and had a response rate of 95% compared with a response rate of 96% for the LFS. Also, the scope of WRTAL differs from the scope of the LFS (refer to the Scope and Coverage section above). Due to these differences between the samples, WRTAL data are weighted as a separate process to the weighting of LFS data. Differences may therefore be found in the estimates for those data items collected in the LFS and published as part of WRTAL when compared with the same data items published in the April 2013 issue of Labour Force, Australia (cat. no. 6202.0).

25 Additionally, estimates from WRTAL may differ from the estimates for the same or similar data items produced from other ABS collections for several reasons. For example, all sample surveys are subject to different sampling errors so users should take account of the relative standard errors (RSEs) on estimates where comparisons are made. Differences may also exist in scope and/or coverage, reference periods reflecting seasonal variations, non-seasonal events that may have impacted on one period but not another, or because of underlying trends in the phenomena being measured.

Comparability with Survey of Education and Training

26 Differences can occur as a result of using different collection methodologies. For example, although many of the data items included in WRTAL are similar to those collected in the 2009 Survey of Education and Training (SET), (please refer to Education and Training Experience, 2009 (cat. no. 6278.0), results from the two surveys are not directly comparable. There are a number of differences in the collection methodology which impact on the final participation rates. These changes include mode effect, context effect, question wording and changes to the in scope population.

27 Mode effect refers to the impact of the survey delivery method on the responses to the survey. The 2009 SET was collected as a face-to-face interview with each person in the selected households. In particular, respondents were provided with prompt cards enabling them to read, and then select, the response categories for various questions. On the other hand, WRTAL was collected predominantly as a telephone interview with one randomly selected person in each household meaning prompt cards were not provided. Where face-to-face interviews were conducted, prompt cards were also not used.

28 Context effects occur when the preceding questions influence responses to subsequent questions or when the order in which the questions are asked affects the correlation between the target and the context questions. The WRTAL survey focused on work-related training and therefore the majority of questions were framed around

participation in this form of learning. SET was a large survey which focused mainly on participation in formal learning, with the questions about non-formal learning following the modules about formal learning. It is possible that the context effects may contribute to the differences in reporting of participation in work-related training.

29 Due to the change in mode of collection between SET and WRTAL it was necessary for a number of the questions to be redesigned. In particular, questions about participation in work-related training were asked directly in WRTAL, whereas in SET, participation in work-related training was derived from particular responses to questions relating to the reasons for undertaking all non-formal training.

30 The in scope population for WRTAL and SET were slightly different which may have contribute to differences in estimated participation rates for learning activities. While the in-scope population for WRTAL included all people aged 15-74 years, the in-scope population for SET was people aged 15-64 years and people aged 65-74 years who were in or marginally attached to the labour force.

31 Finally, due to the limited time available for supplementary surveys compared to Special Social Surveys, WRTAL only collected information about the most recent work-related training and personal interest learning course for each respondent. SET, however, collected information on up to four most recent courses (either work-related training or personal interest learning) for each person in the household. This allowed for additional data to be presented in the SET publication at the specific course level that is not available in the WRTAL publication.

CLASSIFICATIONS

Country of birth

32 Country of birth data are classified according to the Standard Australian Classification of Countries (SACC), Second Edition (cat. no. 1269.0).

Industry

33 Industry data are classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (Revision 1.0) (cat. no. 1292.0).

Occupation

34 Occupation data are classified according to the Australian and New Zealand Standard Classifications of Occupations (ANZSCO), First Edition, Revision 1 (cat. no. 1220.0).

Education

35 Education data are classified according to the Australian Standard Classification of Education (ASCED), 2001 (cat. no. 1272.0). The ASCED is a national standard classification which can be applied to all sectors of the Australian education system including schools, vocational education and training and higher education. The ASCED comprises two classifications: Level of Education and Field of Education.

36 Level of Education is defined as a function of the quality and quantity of learning involved in an educational activity. There are nine broad levels, 15 narrow levels and 64 detailed levels. For definitions of these levels see the Australian Standard Classification of Education (ASCED), 2001 (cat. no. 1272.0).

37 Field of Education is defined as the subject matter of an educational activity. Fields of education are related to each other through the similarity of subject matter, through the broad purpose for which the education is undertaken, and through the theoretical content which underpins the subject matter. There are 12 broad fields, 71 narrow fields and 356 detailed fields. For definitions of these fields see the Australian Standard Classification of Education (ASCED), 2001 (cat. no. 1272.0).

Socio-economic Indexes for Areas (SEIFA)

38 Socio-economic Indexes for Areas (SEIFA) is a suite of four summary measures that have been created from 2011 Census information. Each index summarises a different aspect of the socio-economic conditions of people living in an area. The indexes provide more general measures of socio-economic status than is given by measures such as income or unemployment alone.

39 Each index ranks geographic areas across Australia in terms of their relative socio-economic advantage and disadvantage. The four indexes each summarise a slightly different aspect of the socio-economic conditions in an

area. It is important to note that the indexes are assigned to areas and not to individuals. They indicate the collective socio-economic characteristics of the people living in an area. The respondents in the WRTAL survey have been assigned the 2011 Census SEIFA for the area in which they live. Consequently, they may not necessarily have the same personal characteristics that describes the socio-economic status of their geographic area as a whole.

40 The index used in the Work-Related Training and Adult Learning publication is the Index of Relative Socio-economic Disadvantage (IRSD), derived from Census variables such as income, educational attainment, employment/unemployment, occupation and some housing variables. The index ranks areas on a continuum from most disadvantaged to least disadvantaged. A low score on the index (i.e. lowest quintile or decile) indicates a high proportion of relatively disadvantaged people in an area. Such areas include many households with low income, people with no qualifications and many people in low skill occupations. It should be noted that it cannot be concluded that an area with a very high score has a large proportion of relatively advantaged ('well off') people, as there are no variables in the index to indicate this. It can only be concluded that such an area has a relatively low incidence of disadvantage.

41 The indexes and supporting material are found in the publication Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia (cat no 2033.0.55.001)

PRODUCTS AND SERVICES

42 A Data Cube (spreadsheet) containing all tables produced for this publication is available from the Downloads tab. The Data Cubes present tables of estimates and proportions, and their corresponding Relative Stand Errors (RSEs).

43 For users who wish to undertake more detailed analysis of the data, the survey microdata will be available through TableBuilder in March 2014. For further details on the TableBuilder product please refer to the Microdata pages on the ABS website.

44 Special tabulations are available on request. Subject to confidentiality and sampling variability constraints, tabulations can be produced from the survey incorporating data items, populations and geographic areas selected to meet individual requirements. These can be provided in printed or electronic form. All enquiries should be made to the National Information and Referral Service on 1300 135 070.

ACKNOWLEDGEMENTS

45 ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated; without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the Census and Statistics Act 1905.

NEXT SURVEY

46 The ABS plans to conduct this survey again in 2017.

RELATED PUBLICATIONS

47 Current publications and other products released by the ABS are available from the ABS website. The ABS also issues a daily upcoming release advise on the websites that details products to be released in the week ahead. The web page Topics @ a Glance - Education and Training also contains a range of information and useful references relating to education and training statistics.

Glossary

GLOSSARY

Australian Qualifications Framework (AQF)

The Australian Qualifications Framework (AQF) is the national policy for regulated qualifications in Australian education and training. It incorporates the qualifications from each education and training sector into a single

comprehensive national qualifications framework. It was first introduced in 1995.

Australian Standard Classification of Education (ASCED)

The ASCED is a national standard classification which includes all sectors of the Australian education system: that is, schools, vocational education and training, and higher education. From 2001, ASCED replaced a number of classifications used in administrative and statistical systems, including the Australian Bureau of Statistics Classification of Qualifications (ABSCQ). The ASCED comprises two classifications: Level of education and Field of education. See Australian Standard Classification of Education (ASCED), 2001 (cat. no. 1272.0).

Australian Statistical Geography Standard (ASGS)

Effective from July 2011, the Australian Statistical Geography Standard (ASGS) developed by the ABS, provides the framework for the collection and dissemination of statistics. See Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2011 (cat no. 1270.0.55.001).

Balance of state/territory

Comprises the balance of each State/Territory not included in Capital City. See Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2011 (cat no. 1270.0.55.001)

Capital city

Refers to Greater Capital City Statistical Areas (GCCSA) as defined by the ASGS. The GCCSAs represent the socio-economic extent of each of the eight State and Territory capital cities. The whole of the ACT is included in the GCCSA. See Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2011 (cat no. 1270.0.55.001)

Certificate not further defined

Survey responses are coded to Certificate not further defined (n.f.d.) when there is not enough information to code them to Certificate I, II, III or IV in the Australian Standard Classification of Education (ASCED), 2001 (cat. no. 1272.0), Level of education classification.

Classroom instruction

Method for delivering work-related training involving a teacher, lecturer or presenter; includes but not limited to seminars, lectures, hands-on work or practical exercises, group exercises and laboratory work.

Completed (schooling)

For schooling up to and including Year 11, the term 'completed' means attendance of a full year of school enabling the student to progress to the next year of school.

Completed (qualification)

For non-school qualifications 'completed' refers to successfully passing the required assessment(s) or examination(s) to gain an educational qualification. For Year 12 'completed' refers to the successful completion of Year 12 and attainment of a Certificate or Statement of results.

Consultant

A consultant refers to a person or organisation hired or contracted by an employer to deliver a work-related training course.

Contact activities

Activities that involve direct contact with a teacher or instructor, for example attending a lecture, seminar or tutorial.

Country of birth

Country of birth has been classified according to the Standard Australian Classification of Countries (SACC), Second Edition (cat. no. 1269.0).

Current main job

The job which a person was employed in during the survey reference week. In cases where the person was

employed in more than one job, the current main job refers to the job in which the person worked the most hours.

Note: Most labour force characteristics presented in this publication relate to the week before the survey interview and therefore may not reflect the respondents actual employment status at the time of the training (e.g. a person may have recently changed jobs and undertaken their most recent training within another employment position). Data presented in this publication relating to employment (e.g. occupation and industry) are presented only for people who have undertaken training as part of their current main job.

Employed

Persons who, during the reference week:

- worked for one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (comprising employees, employers and own account workers)
- worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers)
- were employees who had a job but were not at work and were:
 - away from work for less than four weeks up to the end of the reference week
 - away from work for more than four weeks up to the end of the reference week and received pay for some or all of the four week period to the end of the reference week
 - away from work as a standard work or shift arrangement
 - on strike or locked out
 - on workers' compensation and expected to return to their job, or
- were employers or own account workers who had a job, business or farm, but were not at work.

Employed full-time

Employed persons who usually worked 35 hours or more a week (in all jobs) and those who, although usually working less than 35 hours a week, worked 35 hours or more during the reference week.

Employed part-time

Employed persons who usually worked less than 35 hours a week (in all jobs) and either did so during the reference week, or were not at work in the reference week.

Employee

A person who works for a public or private employer and received pay for the reference period in the form of wages or salaries, a commission while also receiving a retainer, tips, piece rates or payment in kind. Persons who operated their own incorporated business with or without hiring employees were also included as employees.

External training provider

An external training provider is defined as a person or organisation who deliver work-related training and is not classified as either an existing staff member or a consultant hired by the organisation to deliver the training.

Field not determined

Field not determined includes inadequately described responses or where no responses were given.

Field of education

Field of education is defined as the subject matter of an educational activity. It is categorised according to the Australian Standard Classification of Education (ASCED), 2001 (cat. no. 1272.0) field of education classification.

Formal learning

Refers to any study being undertaken that will lead to a recognised qualification, issued by a relevant approved body, in recognition that a person has achieved learning outcomes or competencies relevant to identified individual, professional, industry or community needs. This includes study for a school qualification. In this survey, if the respondent was still attending school their level of study was recorded as their current year of schooling. If the respondent had left school and was enrolled in study for a qualification they were asked the level of the qualification.

Index of relative socio-economic disadvantage

This is one of four Socio-economic Indexes for Areas (SEIFAs) compiled by the ABS following each Census of Population and Housing, from various characteristics of persons resident in particular areas. The Index of Disadvantage summarises attributes such as income, educational attainment, unemployment and occupation skill

levels. The index refers to the area (the Statistical Area Level 1) in which a person lives, not to the socio-economic situation of the particular individual. The index ranks areas on a continuum from most disadvantaged to least disadvantaged. A low score on the index (i.e. lowest quintile or decile) indicates a high proportion of relatively disadvantaged people in an area. Such areas include many households with low income, people with no qualifications and many people in low skill occupations. The indexes used in this publication were those compiled following the 2011 Census. For further information about the indexes, see *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2011* (cat no 2033.0.55.001).

Industry

Industry data is classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006 (Revision 1.0) (cat. no. 1292.0).

Level of education

Level of education is a function of the quality and quantity of learning involved in an educational activity. It is categorised according to the Australian Standard Classification of Education (ASCED), 2001 (cat. no. 1272.0) level of education classification.

Level not determined

Level not determined includes inadequately described responses or where no responses were given.

Non-contact activities

Activities that do not involve contact with a teacher or instructor, for example undertaking research or completing assignments.

Non-formal learning

Non-formal learning activities are structured training or courses that do not form part of an award or qualification (e.g. Degree or Certificate) recognised by the Australian Qualifications Framework (AQF).

Not in labour force

Persons who were not in the categories employed or unemployed, as defined.

Non-school qualification

Non-school qualifications are awarded for educational attainments other than those of pre-primary, primary or secondary education. They include qualifications at the Postgraduate Degree level, Master Degree level, Graduate Diploma and Graduate Certificate level, Bachelor Degree level, Advanced Diploma and Diploma level, and Certificates I, II, III and IV levels. Non-school qualifications may be attained concurrently with school qualifications.

Occupation

Occupation data is classified according to the Australia and New Zealand Standard Classifications of Occupations (ANZSCO), First Edition, Revision 1 (cat. no. 1220.0).

On-line instruction

Method for delivering work-related training; includes but not limited to self paced learning and training undertaken via the internet and lectures delivered by a teacher/instructor over the internet.

Own business

A person who operates their own unincorporated economic enterprise or engages independently in a profession or trade, with or without employees. Own business also includes people contributing to a family business.

Participation

Participation relates to formal, work-related training and personal interest learning undertaken in last the 12 months.

Personal costs

Includes any cost related to the course which were paid for by the participant and not reimbursed by a third party, for example course fees or costs for study materials.

Personal interest learning

Structured non-formal learning courses that do not lead to a qualification, undertaken for reasons not related to work.

Qualification

Formal certification, issued by a relevant approved body, in recognition that a person has achieved an appropriate level of learning outcomes or competencies relevant to identified individual, professional, industry or community needs. Statements of attainment awarded for partial completion of a course of study at a particular level are excluded.

Quintile (Index of relative socio-economic disadvantage)

The distribution of the Index of Relative Socio-economic Disadvantage (SEIFA) scores are divided into five equal sized groups referred to as quintiles. In this publication, area-based quintiles rather than population-based quintiles are used. The lowest scoring 20% of areas are allocated Quintile 1, the second lowest 20% of areas are allocated Quintile 2 and so on, up to the highest 20% of areas which are allocated Quintile 5.

Remoteness area

The Australian Standard Geographical Standard (ASGS): Volume 5 - Remoteness Structure, July 2011 (cat. no.1270.0.55.005) is used by the ABS for the dissemination of a broad range of social and demographic statistics. The classification divides Australia into six broad regions (called Remoteness areas), on the basis of their relative access to services.

School study

School study is participation in primary or secondary level education, regardless of the institution or location where the study is or was undertaken. It therefore includes such study undertaken in a Technical and Further Education (TAFE) or other institution. For the purpose of this publication school study is classified as participation in formal learning.

SEIFA

See Index of relative socio-economic disadvantage

Size of business

A measure of the size of business in terms of the number of employees within that business. The measurement of business size includes:

- larger businesses which employ 100 employees or more
- medium-sized businesses which employ 20 to 99 employees
- smaller businesses which employ less than 20 employees.

These measurements apply for both size of business in location and size of business throughout Australia.

Working hours

Refers to the usual hours that a person works.

Work-related training

Non-formal learning undertaken to obtain, maintain or improve employment related skills and/or to improve employment opportunities (i.e. seeking employment, promotion or starting own business). Work-related training courses have a structured format but do not lead to a qualification.

Unemployed

Persons who were not employed during the reference week, and:

- had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and were available for work in the reference week, or
- were waiting to start a new job within four weeks from the end of the reference week and could have started in the reference week if the job had been available then.

Abbreviations

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ANZSIC	Australian and New Zealand Standard Industrial Classification
AQF	Australian Qualifications Framework
ASCED	Australian Standard Classification of Education
ASGC	Australian Standard Geographical Classification
ASGS	Australian Statistical Geography Standard
CAI	computer assisted interviewing
ERP	estimated resident population
LFS	Labour Force Survey
n.f.d.	not further defined
RSE	relative standard error
SACC	Standard Australian Classification of Countries
SE	standard error
SEIFA	Socio-Economic Indexes for Areas
SET	Survey of Education and Training
TAFE	Technical and Further Education
WRTAL	Work-Related Training and Adult Learning

Quality Declaration - Summary

QUALITY DECLARATION - SUMMARY

INSTITUTIONAL ENVIRONMENT

The Survey of Work-Related Training and Adult Learning (WRTAL) was conducted throughout Australia for the first time in April 2013, as part of the Australian Bureau of Statistics (ABS) household survey program. For information on the institutional environment of the ABS, including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment.

RELEVANCE

The Work-Related Training and Adult Learning survey provides a range of information about formal and non-formal learning activities undertaken by Australians, with a particular focus on work-related training. Data is presented along side general demographic, educational and employment characteristics. The data available includes participation rates for work-related training and personal interest learning, the reasons for participation, the time spent undertaking the most recent training and personal costs incurred. Also collected is information on the barriers that prevent people from undertaking training.

Work-related training plays a crucial role in developing and sustaining skilled and competent employees. For the individual, work-related training helps enhance personal and professional development and build new capabilities for career advancement or a change in occupation. For businesses, it improves workplace performance and productivity.

TIMELINESS

The first WRTAL survey was conducted in April 2013 and is expected to be collected every four years, with the next iteration planned for January 2017. Data from the survey are released approximately six months after collection.

ACCURACY

The LFS, and consequently the WRTAL survey, is designed primarily to provide reliable estimates at the national level and secondly, for each state and territory. The WRTAL sample, based on a subset of the LFS sample, comprised of usual residents aged 15–74 in private dwellings. One person from each household was randomly selected to respond to the WRTAL survey.

In addition to general LFS scope and coverage exclusions for private dwellings (e.g. members of defence forces, diplomatic personnel, etc), WRTAL also excluded those LFS respondents who completed the LFS questionnaire over the Internet. The number of completed interviews for WRTAL, after taking into account scope and coverage exclusions, was 19,976. This sample was achieved by obtaining a response rate of 95% from selected households. For a complete list of scope and coverage inclusions and exclusions for the Survey of Work-related Training and Adult Learning, refer to the Explanatory Notes.

Two types of error are possible in an estimate based on a sample survey: non-sampling error and sampling error.

Non-sampling error arises from inaccuracies in collecting, recording and processing the data. Every effort is made to minimise reporting error by the careful design of questionnaires, intensive training and supervision of interviewers, and efficient data processing procedures.

Sampling error occurs because a sample, rather than the entire population is surveyed. One measure of the likely difference resulting from not including all dwellings in the survey is given by the standard error. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included in the survey and about nineteen chances in twenty that the difference will be less than two standard errors.

Estimates (numbers and proportions) with RSEs less than 25% are considered sufficiently reliable for most purposes. Estimates with RSEs between 25% and 50% are annotated to indicate they are subject to high sampling variability and should be used with caution. Estimates with RSEs greater than 50% have also been included and annotated to indicate they are considered too unreliable for general use.

COHERENCE

This is the first time the Work-related Training and Adult learning survey has been conducted, and as such no other data is available for direct comparison.

Although data presented in the WRTAL publication are similar to that collected in the Survey of Education and Training, data between the two surveys should not be directly compared due to the different collection methodologies used. The Explanatory Notes section included in this publication provides more detailed information on the differences between the two surveys.

INTERPRETABILITY

This publication, contains a collection of tables with footnoted data to aid with the interpretation of the survey results. The Summary of Findings comprises analytical text and graphics to support interpretation of the publication tables. Explanatory Notes, a Technical Note, and a Glossary provide additional information on the data, terminology, classifications and other associated technical aspects of the survey.

ACCESSIBILITY

Tabulated data and associated RSEs are available in spreadsheet format [and](#) can be accessed from the Downloads tab.

Data from this survey will be accessible in the TableBuilder environment, enabling users to create tabulated output as required. For further details, refer to the Microdata Entry Page on the ABS website.

Data are also available on request. Note that detailed data can be subject to high relative standard errors which in some cases may result in data being confidentialised.

For further information about these or related statistics, contact the National Information and Referral Service on 1300 135 070.

Data quality (Technical Note)

TECHNICAL NOTE DATA QUALITY

RELIABILITY OF THE ESTIMATES

1 Since the estimates in this publication are based on information obtained from a sample, they are subject to sampling variability. That is, they may differ from those estimates that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings (or households) was included. There are about two chances in three (67%) that a sample estimate will differ by less than one SE from the number that would have been obtained if all dwellings had been included, and about 19 chances in 20 (95%) that the difference will be less than two SEs.

2 Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate.

$$RSE\% = \left(\frac{SE}{estimate} \right) \times 100$$

3 RSEs for the 2013 Work-Related Training and Adult Learning (WRTAL) survey have been calculated using the Jackknife method of variance estimation. This involves the calculation of 30 'replicate' estimates based on 30 different sub samples of the obtained sample. The variability of estimates obtained from these subsamples is used to estimate the sample variability surrounding the estimate.

4 RSEs of all of the estimates in this publication are included in the Data Cubes released as part of the publication and available from the Downloads tab of the publication.

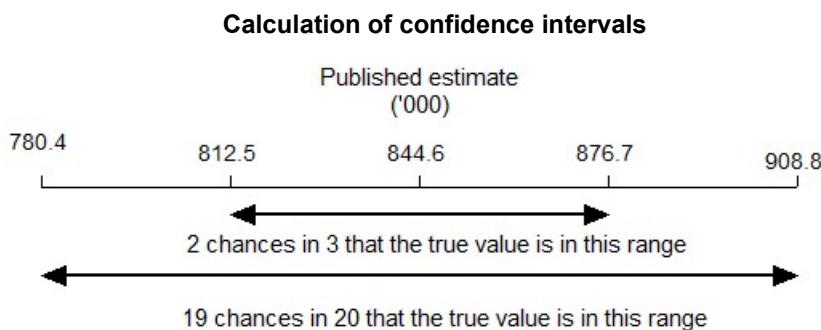
5 Only estimates (numbers and proportions) with RSEs less than 25% are considered sufficiently reliable for most purposes. Estimates with RSEs between 25% and 50% are presented with a cell comment to indicate they are subject to high sample variability and should be used with caution. Estimates with RSEs greater than 50% are presented with a cell comment to indicate that they are considered too unreliable for general use.

CALCULATION OF STANDARD ERROR

6 Standard errors can be calculated using the estimates (counts or proportions) and the corresponding RSEs. For example, Table 1 shows the estimated number of people aged 20-24 years who participated in formal learning was 844,600. The RSE table corresponding to the estimates in Table 1 (included in the Data Cubes) shows the RSE for this estimate is 3.8%. The SE is calculated by:

$$\begin{aligned} SE \text{ of estimate} &= \left(\frac{RSE}{100} \right) \times estimate \\ &= 0.038 \times 844,600 \\ &= 32,100 \text{ (rounded to nearest 100)} \end{aligned}$$

7 Therefore, there are about two chances in three that the actual number of Australians aged 20-24 years who participated in formal learning was in the range of 812,500 to 876,700 and about 19 chances in 20 that the value was in the range 780,400 to 908,800. This example is illustrated in the diagram below:



CALCULATION OF STANDARD ERROR FOR MEDIANs

8 This publication contains calculations of medians. The median value is the middle value of a set of values when the values are sorted in size order.

9 Standard errors can be calculated using the median and their corresponding RSE using the same formula described above for calculating SE for estimates (paragraph 6).

PROPORTION AND PERCENTAGES

10 Proportions and percentages formed from the ratio of two estimates are also subject to sampling errors. The size of the error depends on the accuracy of both the numerator and the denominator. A formula to approximate the RSE of a proportion is given below. This formula is only valid when the numerator is a subset of the denominator.

$$RSE\left(\frac{x}{y}\right) = \sqrt{[RSE(x)]^2 - [RSE(y)]^2}$$

11 As an example, using estimates from Table 1, of the 8,536,900 males aged 15-74 years, 20.2%, or 1,725,800 had participated in formal learning. The RSE for 8,536,900 is 0.2% and the RSE for 1,725,800 is 2.2% (see Table 1 RSEs of Proportions). Applying the above formula, the RSE for the percentage of males who participated in formal learning is:

$$RSE\% = \sqrt{(2.2)^2 - (0.2)^2} = 2.2\%$$

12 Therefore, the SE for the percentage of males aged 15-74 years who participated in formal learning is 0.4 percentage points $((2.2/100) \times 20.2 = 0.4)$. Hence, there are about two chances in three that the percentage of males who participated in formal learning is between 19.8% and 20.6%, and 19 chances in 20 that the percentage is between 19.4% and 21.0%.

DIFFERENCES

13 Published estimates may also be used to calculate the difference between two survey estimates (numbers or proportions). Such an estimate is also subject to sampling error. The sampling error of the difference between two estimates depends on their SEs and the relationship (correlation) between them. An approximate SE of the difference between two estimates ($x-y$) may be calculated by the following formula:

$$SE(x-y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$

14 While this formula will only be exact for differences between separate and uncorrelated characteristics or sub populations, it provides a good approximation for the differences likely to be of interest in this publication.

SIGNIFICANCE TESTING

15 A statistical significance test for any comparisons between estimates can be performed to determine whether it is likely that there is a difference between two corresponding population characteristics. The standard error of the difference between two corresponding estimates (x and y) can be calculated using the formula above. This standard error is then used to calculate the following test statistic:

$$\left(\frac{x-y}{SE(x-y)} \right)$$

16 If the value of this test statistic is greater than 1.96 then there is evidence, with a 95% level of confidence, of a statistically significant difference in the two populations with respect to that characteristic. Otherwise, it cannot be stated with confidence that there is a real difference between the populations with respect to that characteristic.

OTHER SOURCES OF ERROR

17 The imprecision due to sampling variability, which is measured by the SE, should not be confused with inaccuracies that may occur because of imperfections in reporting by respondents and recording by interviewers, and errors made in coding and processing data. Inaccuracies of this kind are referred to as non-sampling error, and they occur in any enumeration, whether it be a full count or sample. Every effort is made to reduce non-sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers, and efficient operating procedures.

